REMARKS

Reconsideration of the rejections set forth in the Office Action is respectfully requested. By this amendment claims 1, 5, 13-15, 23-24, and 27 have been amended. Currently, claims 1-5, 8-24, and 27 are pending in this application.

Rejection under 35 USC 103

Claims 1-5, 8-24, and 27 were rejected under 35 USC 103 as unpatentable over Garahi, et al. (U.S. Patent Application Publication No. 2003/0091010) in view of Hu (U.s. Patent Application Publication No. 2003/0032451). This rejection is respectfully traversed in view of the amendments to the claims and the following arguments.

This application relates to a mobile inter-mesh communication point that is configured to operate on two wireless mesh networks at the same time. Applicants proposed in this application to use a first level mesh network to implement an access network and to use a second level mesh network to implement a backhaul network that would connect the access network to higher bandwidth communication resources. Applicants also proposed to allow the inter-mesh communication points to be mobile, so that the ad-hoc backhaul mesh network could move within both networks. In this way, the wireless access point may move so that the access network can move and the backhaul network can simultaneously adapt to the changes in the access network.

In the previous response, applicants presented arguments that Garahi teaches one level of mesh. Because Garahi only teaches one mesh level, the Intelligent Access Points (IAPs) of Garahi are not "inter-mesh" access points as claimed.

Garahi teaches that the mobile terminals 118 and wired IAPs form an "ad-hoc network as described in U.S. patent application Ser. No. 09/897,790." [1] (Garahi at Par. 30). Thus, the mobile user terminals form a first level mesh network and the IAPs may participate in the first level mesh network.

When mobile IAPs are used, Garahi teaches that the mobile IAPs communicate with the wired IAPs using either a microwave backhaul (which is a point-to-point transmission scheme) or using a "self forming self healing radio access technology as described in U.S. patent application Ser. No. 09/897,790)." (Garahi at Par. 38). Note, in this regard, that Garahi references the same patent application to provide supporting details for both the first level mesh network implemented between the mobile terminals and IAP, and for the mesh network that interconnects the fixed and mobile IAPs. The natural reading of this would be that communication takes place between the mobile terminals and IAPs, and between mobile and fixed IAPs, using a unified first level mesh network. Thus, applicants respectfully submit that Garahi does not teach or suggest two levels of mesh networks, but rather implements everything using a single level mesh network.

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[1] The USPTO PAIR system indicates that this application has now issued as U.S. Patent No. 7.072,650.

This is consistent with Figs. 5 and 6 of Garahi. In Fig. 5, the IAP 132 is disposed in vehicle 146 (see Paragraph 37), and "operates as a router to enable intercommunication between mobile terminals 118 which can be hand-held or present in other vehicles 154, 156." (Garahi at Par. 39). Thus, in Fig. 5 the IAP is functioning as a router in the first level mesh network to allow user terminals such as handheld and car-based terminals in the first level mesh network to communicate with each other. Thus, Fig. 5 shows and describes the operation of the mobile IAP in the first level mesh network.

In connection with Fig. 6, Garahi states that "the mobile IAPs 132 can use each other in conjunction with another user terminal 118 in the ad-hoc network, such as a user terminal 118 present in a vehicle 154, to connect to a fixed IAP, such as IAP 108." Since we know that the user terminals 118 are operating in the first level mesh network, this portion of Garahi supports applicants interpretation that the fixed and mobile IAPs are likewise communicating with each other using the first level meshed network. Specifically, Fig. 6 shows the mobile network bridging communication from one mobile IAP to another mobile IAP which then forwards the communication to the fixed IAP. This shows that the mobile unit and mobile IAPs are communicating with each other using the same mesh network as that being used by the mobile terminal and, hence, that the communication that occurs between the fixed and mobile IAPs is all part of the first level mesh network.

In the rejection, the Examiner has taken the position that Garahi teaches a mobile inter-mesh communication point citing Fig. 3, and paragraph 24 of Garahi. However, as discussed above, Garahi actually doesn't teach two levels of mesh networking. Rather, Garahi teaches only one level of mesh networking. While Fig. 3 does show a mobile IAP with multiple transceivers and antennas, that fact alone does not indicate that the mobile IAP is operating on multiple levels of wireless mesh networking. Rather, the fact that the transceivers are labeled 134-1, 134-2 in Fig. 3 indicates that they are identically configured. If they were differently configured to operate on different networks presumably they would have been given different references numbers. Note, in this regard, that it is common practice in the Patent field to give similar elements the same reference number, which was what was done by Garahi in Fig. 3. Accordingly, applicants respectfully submit that Garahi does not teach or suggest two levels of wireless mesh networking.

On page 3 of the office action, paragraph 2, the Examiner acknowledges that Garahi fails to point out a first wireless mesh network port using at least one of the 802.11x standards and a second wireless mesh network port using one of the 802.16x standards. However, the Examiner then contends that doing so would have been obvious in view of Hu.

Hu teaches a Common Access Point which he states can implement any wireless networking standard so that it can communicate with any available networking device. Likewise, Hu teaches a handset that can be modified to operate using any networking protocol. Hu intends to provide a wireless terminal that is able to operate on any access network, and a Common Access Point that can communicate with wireless devices regardless of the wireless communication protocol selected by the wireless device. Hu mentions both 802.11 and 802.16 as possible wireless standards that may be used by a converged wireless terminal and Common Access Point. Hu is thus focused on the access link and does not teach or suggest that two different mesh networks should be used together or that one technology should be used for the access link and another should be used for the backhaul. Rather, he teaches that the access link between the access device and common access point may be implemented using any number of wireless technologies.

Since Hu does have what may be considered to be two ports that operate using different wireless protocols at the same time, applicants have amended claim 1 to further specify that one of the wireless mesh networks is an access network and the other is a backhaul network. The combination of Garahi and Hu would not have rendered this claim obvious because neither Garahi nor Hu teach or suggest using two layers of mesh networking, where one of the layers is an access mesh and the other layer is a backhaul mesh, and where the two layers are not implemented using the same wireless networking technology standard.

Specifically, applicants have amended claim 1 to recite that the mobile inter-mesh communication point includes a "first wireless mesh network port configured to operate utilizing at least one IEEE 802.11x standard to participate on a first level wireless mesh network implemented using the at least one 802.11x standard, the first level wireless mesh network being different from the first wireless mesh network and utilized to implement a wireless access network." Claim 1 has also been amended to recite that the mobile inter-mesh communication point includes a "second wireless mesh network port configured to operate utilizing at least one IEEE 802.16x standard to participate on a second level wireless mesh network implemented using the at least one 802.16x standard, the second level wireless mesh network being utilized to implement a wireless backhaul network, the backhaul network interconnecting the wireless access network with higher bandwidth communication resources." In view of these amendments, applicants respectfully submit that claim 1 is patentable over the combination of Garahi and Hu.

The other independent claims have also been amended to distinguish the combination of Garahi and Hu. Accordingly, applicants respectfully request that the rejection of these claims be withdrawn.

Claim 13

A second aspect of the invention relates to power management. Specifically, as described in the specification as originally filed on Page 22, lines 5-22, the mobile inter-mesh communication point may be connected to the vehicle's electrical system and draw power from the electrical system while the vehicle is running and may continue to draw power from the electrical system (car battery) once the vehicle has been turned off. To prevent the mobile inter-mesh access point from draining the battery of the vehicle, the access point monitors the battery level (voltage, current, and/or power) and turns the access point off to prevent the battery from being drained excessively.

Amended claim 13 recites that the mobile inter-mesh communication point is configured to be disposed in a vehicle having a vehicle battery for use in operating the vehicle, said mobile inter-mesh communication point being connected to said vehicle battery and obtaining power from said battery, the mobile inter-mesh communication point further comprising a battery discharge controller configured to monitor a battery level of the vehicle battery and to turn off the mobile inter-mesh communication point when the battery level of the vehicle battery drops below a threshold value and the vehicle is turned off. Garahi does not teach or suggest that the mobile IAP 132 should be able to be used when the car is turned off or that the mobile IAP 132 should monitor the vehicle battery level to prevent the mobile IAP from draining the vehicle battery excessively. Thus, claim 13 is believed to be independently patentable over the combination of Garahi and Hu.

Conclusion

In view of foregoing remarks, it is respectfully submitted that the application is now in condition for allowance and an action to this effect is respectfully requested. If there are any questions or concerns regarding the amendments or these remarks, the Examiner is requested to telephone the undersigned at the telephone number listed below.

If any fees are due in connection with this filing, the Commissioner is hereby authorized to charge payment of the fees associated with this communication or credit any overpayment to Deposit Account No. 502246 (Ref: NN-16127).

Respectfully Submitted

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